
Department of Microbiology, Immunology, & Molecular Genetics

Requirements for the Ph.D. for students entering via ACCESS

Mentor Requirements

Before entering the MIMG department, students must be directed in their dissertation work by a full or, in some cases, joint faculty member in the MIMG department. This faculty advisor will assume the responsibility as the chair of the student's doctoral committee and essentially all of the student's work must be performed in the laboratories of the faculty advisor. The MIMG faculty advisor assumes full responsibility for the student's progress and must have adequate funding to support the student over the course of his/her studies, as determined by the department chair.

Students entering UCLA through the ACCESS program may take trial rotations in the labs of departmental members during the coursework phase of the program (first year). Upon successful completion of three lab rotations and the ACCESS Program, a student may join the MIMG department if offered a position by an MIMG faculty member. If an ACCESS student commences the requisite three lab rotations during the summer prior to the ACCESS year of study, that student may enter the MIMG department in the Spring Quarter of his/her first year.

Course Requirements (Implemented AY 2011-12)

ACCESS YEAR

Fall Quarter

Biological Chemistry 254A - Concepts in Molecular Biosciences (3 units)

This course covers four basic experimental approaches of biochemistry and molecular biology in the context of various specific topics. The general areas are: 1) structural biology including protein and nucleic acid structure and molecular recognition; 2) use of cell-free and purified in vitro systems to dissect reaction mechanisms; 3) biochemical approaches to dissecting complex reactions/pathways in cells; 4) enzymology and protein chemistry.

Biological Chemistry 254B - Concepts in Molecular Biosciences (3 units)

This course focuses on important biological problems that have been genetically analyzed in different organisms, or a small number of related problems. The course covers the major genetic approaches used in the relevant organisms, including both forward and reverse genetic approaches, genetic interactions between genes (genetic enhancers and suppressors), transgenic technology, and systematic genomic strategies.

Winter Quarter

Biological Chemistry 254C - Concepts in Molecular Biosciences (3 units)

This course addresses the molecular mechanisms underlying complex problems in cell biology. In particular the course covers experimental approaches used to define mechanisms involved in protein targeting, cell structure and subcellular organization, cell communication and intracellular signaling. Analysis of pathways that connect these cellular processes will also be addressed.

Biological Chemistry 254D - Concepts in Molecular Biosciences (3 units)

This course covers the application of biochemical, molecular biological, genetic, and cell biological approaches to understand specialized topics in life and biomedical sciences. Such topics could include microbial pathogenesis, developmental disease, stem cell biology, synaptic transmission in the nervous system, cancer, and heart disease.

Spring Quarter

MIMG C234: Ethics and Accountability in Biomedical Research (2)

Seminar, two hours. Responsibilities and ethical conduct of investigators in research, data management, mentorship, grant applications, and publications. Responsibilities to peers, sponsoring institutions, and society. Conflicts of interest, disclosure, animal subject welfare, human subject protection, and areas in which investigational goals and certain societal values may conflict. S/U grading.

At least two 200 Level Elective Courses (2-4 units each)

Elective survey courses covering various disciplines and topics are offered. As a Spring Quarter requirement, ACCESS students select two of these courses based on their emerging research interests.

MIMG PHD DEGREE PROGRAM

Please note that all MIMG students must enroll in **at least 12 units per quarter**, except Summer, in which you DO NOT enroll. (In the following text, “every quarter” refers to Fall, Winter and Spring quarters, only).

Two Seminar Courses (2 units each) OR One Lecture Course (4 units)

After all of the ACCESS year requirements have been met, entering MIMG students must complete two additional 2-unit seminar courses OR one lecture course related to Cellular and Molecular Biology.

Courses To Be Taken Every Quarter:

MIMG 296 (*Lab Meeting*)

All students in MIMG labs must enroll in 296 every quarter. It is the student's choice to enroll in 1 to 4 units of 296. Students should be sure to enroll in the appropriate 296 section, that is, the one associated with his/her advisor's name. A list of each advisor's section number can be found on the Schedule of Classes (www.registrar.ucla.edu/schedule), **under the MIMG department**.

(296 courses do not satisfy the requirement for two seminar courses in the MIMG PhD program.)

MIMG 596 or MIMG 599 (*Individual Research*)

All students must enroll in 596 or 599, in his/her advisor's section, every quarter. It is the student's choice to enroll in 2 to 12 units per quarter. Prior to passing the Oral Qualifying Exam (OQE), students enroll in 596. *After* passing the OQE, students enroll in 599. A list of each advisor's section number can be found in the Schedule of Classes (www.registrar.ucla.edu/schedule) **under “Individual Studies Courses”**.

Teaching Requirements

All students entering MIMG through ACCESS must serve as teaching assistants for a minimum of two quarters, typically once in the second year and once in the third. At least one of the TAships is must be for an MIMG class, or Life Science 3. Students who will TA during an upcoming academic year will be notified in late summer of his/her TA assignment before the year begins.

Students must enroll in MIMG 495 (TA prep course) during Fall Quarter of their second year (first year as an MIMG student). This class is taught by an experienced teaching apprentice. Additionally, during every quarter in which a student is a TA, (s)he must enroll in 4 units of MIMG 375, under the appropriate faculty member teaching the course. A listing of each professor's section number can be found in the Schedule of Classes (www.registrar.ucla.edu/schedule), **under the MIMG department**.

Program Requirements and Qualifying Examinations

Nomination of Doctoral Committee

to be completed before the end of **Winter Quarter of year 2 as a graduate student**

All students must constitute a doctoral committee, chosen by the student and his/her faculty advisor. The student's MIMG faculty advisor serves as Chair of the doctoral committee. Doctoral committees must consist of the following:

- ❖ Minimum of four UCLA faculty, including the Chair
- ❖ At least three committee members must hold appointments in MIMG
- ❖ At least one member must hold an appointment in a different UCLA department
- ❖ At least two members must have tenure

At least three members of the committee must serve as *certifying members* who will read, approve, and certify the dissertation at the end of the student's studies. One certifying member is the committee Chair, and another must be a faculty from **outside** the MIMG department. Students must complete the Nomination of Doctoral Committee Form online at <http://www.gdnet.ucla.edu/gasaa/library/docnomin.pdf>, and submit it to the MIMG Graduate Student Affairs Office (1602B MSB), for official approval of the committee.

Doctoral Committee Meeting aka First Committee Meeting

to be completed before the end of **Spring Quarter of year 2 as a graduate student**

Students meet with their constituted and approved doctoral committee before the end of Spring Quarter of their second year. The purpose of this meeting is for the student to present his/her plans for dissertation research, and for the committee to evaluate the student's understanding of the rationale and background for the proposed research. In addition, the student receives feedback regarding the project's feasibility and experimental strategy.

- One week prior to the meeting, the student submits a short proposal for the research project to the committee as well as a copy to Graduate Student Affairs. The proposal should be no more than four pages, double spaced, plus references and figures, and should include the background and rationale for the proposed work and a summary of the planned experiments. It is recommended that preparation for the meeting not take more than two weeks (one week to prepare the proposal and one week to prepare the presentation). Faculty advisors should allow students to study full-time during this two-week preparation period.
- The meeting is scheduled for two hours. The student gives a brief presentation (about 30 minutes) of his/her planned research, to be followed by a general discussion of the project with the committee. Following the presentation and discussion, the student will leave the room to allow the committee to discuss the student's proposed project. The student returns for a final discussion of his/her plans. If particular problems or concerns are raised, the committee should formulate a plan to address such issues. Each committee member must fill out and sign the First Committee Meeting form. Forms are available at the MIMG Graduate Student Affairs office.

Students must notify MIMG Graduate Student Affairs of the date, time, and location of the First Committee Meeting before it takes place.

Written and Oral Qualifying Examinations / Advancement to Candidacy (ATC)

to be completed before the end of Spring Quarter of year 4 as a graduate student UNLESS you are a non-resident in which case it must be completed by the end of FALL quarter of year 4

The department recommends four to six weeks of preparation time for the exams. Students should be allowed to study full-time during the preparation period.

Committee members can recommend passing or not passing the student, or can recommend additional work such as rewriting the proposal if it is not adequate. If the committee decides that the student has not passed (two or more committee members voting 'not pass'), the student has one more opportunity to take and pass the exam.

Once the student has passed the Written and Oral Qualifying Examination, (s)he is considered to have *advanced to candidacy*.

The Qualifying Examination consists of two parts – the Written Examination / Proposal, and the Oral Examination:

- The **Written Exam / Proposal** should be in the form of a “mini” research grant proposal. The proposal must be significantly different from the student’s primary research project and other projects within his/her lab. The goal and focus of the Oral and Written Exams is to demonstrate the student’s ability to independently design a research proposal and to explore a new area of investigation.

Two months prior to the anticipated date of the Orals meeting, the student must email the topic/title of the proposal to the faculty advisor for approval, and cc the MIMG Graduate Student Affairs Officer (bridgetw@microbio.ucla.edu)

The proposal consists of a one-page Specific Aims and a six-page Research Strategy section. All page limits include all tables, graphs, figures, diagrams and charts. The proposal should be single-spaced with 0.5 inch margins and in 11 point Arial font. See pages 85 and 86 of this link for detailed instructions on the format and content of the two sections:

http://grants.nih.gov/grants/funding/424/SF424_RR_Guide_Fellowship_VerB.pdf

The student insures that the written proposal is submitted to the doctoral committee one week prior to the oral exam. A copy is also be submitted to MIMG Graduate Student Affairs. Students may discuss the topic of their proposal with their faculty advisor to a limited extent in determining its appropriateness. However, the student must generate the written exam/ proposal and all of its proposed experiments on his or her own.

- The **Oral Examination** focuses on the discussion and defense of the written exam/proposal and is conducted by the doctoral committee. *Every member of the committee must be present for the entire exam for it to be considered valid by Graduate Division.*

The purpose of the oral exam is to allow the committee to evaluate the student's understanding of the project. This understanding should extend to the background that forms the basis for the project, and the rationale behind the experimental plans. The student should demonstrate an understanding of any potential logical or technical weaknesses in the experimental approaches, and be able to provide alternative approaches that might address those weaknesses. The student should be able to interpret possible results and the significance of those results.

The student leaves at the beginning of the exam to allow the faculty advisor to summarize the student’s progress, and again at the end to allow the committee to decide whether the student has successfully completed the exam.

The oral exam should be scheduled for two hours. **The student schedules the meeting and notifies MIMG Graduate Student Affairs of the date, time, and location of the exam before it takes place.**

Annual Progress Report and Meeting

Year 4 as a graduate student and after

Each year after completion of the Qualifying Examinations*, the student submits an Annual Report and meets with his/her doctoral committee.

- Annual Report forms are available at the MIMG Graduate Student Affairs office.

The report should consist of a one-page abstract that describes the project and the efforts completed to date. (An abstract submitted to a scientific meeting may fulfill this requirement).

The student insures that the annual report is submitted to the doctoral committee and the MIMG Graduate Student Affairs office a week prior to the meeting.

- The format of the meeting consists of the student's informal presentation based on data acquired to date, to be followed by discussion with the committee about the progress and future direction of the project. The meeting serves a variety of purposes, including an avenue for advice regarding new approaches or directions for students who have reached an impasse in their work; or for students whose research is going well, advice on how much work remains for the dissertation to be considered complete. **The student schedules the Annual Meeting with the committee and informs the MIMG Graduate Student Affairs office of the day, time and location of the meeting.**

** Your first annual meeting must happen within one year of completion of the Qualifying Examinations, and every year that follows. For example, if you complete your Qualifying Exams in Fall of 2013, then your first Annual Meeting must be held by the end of Fall quarter, 2014; the second Annual Meeting must be held by the end of Fall quarter 2015 (if you haven't already graduated), etc.*

Dissertation Seminar and Final Oral Examination

Year 5

A Dissertation Seminar based on the completed dissertation is to be given by the student. All doctoral committee members must be present at the seminar.

The Final Oral Examination (questioning from your doctoral committee) immediately follows the Dissertation Seminar, and is the last requirement to be fulfilled before filing the dissertation.

Please notify MIMG Graduate Student Affairs of the date, time, and location of the meeting before it takes place.

Guidelines for writing and filing the doctoral dissertation are available from the Graduate Division website (<http://www.gdnet.ucla.edu/gasaa/library/thesisintro.htm>). Students also submit three copies of their dissertation to the MIMG Graduate Student Affairs Office to be bound.

Scholarship

UCLA requires at least a B (3.00) average in all course work taken while a graduate student. Failure to maintain at least a 3.00 GPA may result in **dismissal** from the program if not rectified in the following quarter and approved by Graduate Division. If the student is dismissed, readmission is NOT guaranteed.

Time to Degree

Students are expected to make significant progress on their dissertation project to compete the degree within 4.5 to 5.5 years. Graduate Division limits the total time to degree to 6 years.

Timeline for Requirements

<i>ACCESS Year</i>	<i>2nd Year</i>	<i>3rd year</i>	<i>4th year</i>	<i>5th year</i>
Course work	Nominate committee	Written and Oral Exams	Annual Meeting	Annual Meeting
Lab rotations	Meet with committee (First Committee meeting)	TA one quarter		Write dissertation
	TA one quarter			Final Dissertation Defense
	Finish course work (two 2-unit seminars or one 4-unit course)			File dissertation